

In the claims:

Cancel claims 1-4, 9-17, 20-25 and 31-35 without prejudice.

Retain claims 6, 8 and 28-30 without amendment as set forth below.

Amend claims 5, 7, 18, 19, 26 and 27 as set forth below.

1. (cancelled)

2. (cancelled)

3. (cancelled)

4. (cancelled)

5. (currently amended) In a series of successively sized segmented pipe couplings ~~according to claim 2~~, each coupling adapted to securably connect the similarly configured and sized pipe ends of juxtaposed pipes;

each one of said series of segmented pipe couplings comprising at least two arcuate segments to be assembled in arcuate end-to-end relationship for encircling the juxtaposed ends of the pipes to be coupled;

each of said coupling segments including:

radially inwardly extending and axially spaced first and second keys, said first keys of the juxtaposed coupling segments being in circumferential alignment, and said second keys of the juxtaposed coupling segments being in circumferential alignment, each of said first and second keys being adapted to cooperatively engage a peripheral groove about the outer circumference of one of the juxtaposed pipe ends, and

bolt receiving pads at the ends of each of said coupling segments for receiving bolts to securably maintain the individual coupling segments of each series about the juxtaposed pipe ends, with the tightening of said bolts bringing the bolt pads together to urge the individual coupling segments radially inward to produce a reduction in the internal circumference of the coupling and cause clamping engagement with the pipe exterior, with said keys being tightly retained within their respective pipe recesses when said bolts are in their fully tightened condition;

each one of said series having a different diameter and intended to couple together two pipes having the same pipe diameter;

each first segmented pipe coupling in a first one of said series having a first diameter and each second segmented pipe coupling in a second one of said series having a second diameter, said second segmented pipe couplings being the next successively sized couplings within said series after said first segmented pipe couplings, with said second diameter being greater than said first diameter,

said first segmented pipe couplings being intended to couple together pipes having respective pipe diameters that are different from the respective pipe diameters of pipes that said second segmented pipe couplings are intended to couple together,

wherein said coupling segments in any one of said series are identical to each other and symmetric such that each bolt pad on any coupling segment in any one of said series is alignable into a fully bolt tightened connection with any bolt pad of any other coupling segment in that one of said series,

the improvement comprising:

anti-mismatch means provided on the individual ones of said coupling segments for preventing the fully bolt tightened connection of a coupling segment of said first one of said series to a coupling segment of said second one of said series, said second diameter being only slightly greater than said first diameter,

wherein each anti-mismatch means provided on the coupling segments of said first one of said series has a first structural symmetry and each anti-mismatch means provided on the coupling segments of said second one of said series has a second structural symmetry different from said first structural symmetry, such that any two of the coupling segments of said first one of said series will nest together with matching symmetries, any two of the coupling segments of said second one of said series will nest together with matching symmetries, but any coupling segment of said first one of said series is prevented from nesting with any coupling segment of said second one of said series by their different symmetries,

wherein said anti-mismatch means includes a first member on a first of said coupling segments in each of said series, and a second member on a second of said coupling segments of each of said series,

the first and second members of said first one of said series of segmented pipe couplings configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said first diameter,

the first and second members of said second ones of said series of pipe couplings configured and located to nest as their coupling segments are bolt tightened, such

that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said second diameter,

the orientation of said first and second members of said first one of said series of segmented pipe couplings differing from the orientation of said first and second members of said second one of said series such that said first and second members of their respective segmented pipe couplings provide an interference relationship opposing the bolted connection of an arcuate coupling segment of said first one of said series to an arcuate coupling segment of said second one of said series, and

wherein said first member being a projection and said second member being a recess configured to receive said projection, the location of said projection and recess in said second one of said series being the reverse of said first one of said series, such that if two coupling segments of the same one of said first or second series are in juxtaposition a projection of each coupling segment will enter a recess of the other coupling segment to permit close engagement therebetween, and if a coupling segment of said first series is in juxtaposition to a coupling segment of said second series their projections will abut to prevent close engagement therebetween.

6. (original) In a series of successively sized segmented pipe couplings according to claim 5, wherein said interference relationship provides a separation gap between the bolt pads of juxtaposed coupling segments of said first and second ones of said series, preventing the bringing together of the bolt pads of juxtaposed coupling segments of said first and second series to their fully tightened condition.

7. (currently amended) In a series of successively sized segmented pipe couplings according to claim 4, each coupling adapted to securably connect the similarly configured and sized pipe ends of juxtaposed pipes;

each one of said series of segmented pipe couplings comprising at least two arcuate segments to be assembled in arcuate end-to-end relationship for encircling the juxtaposed ends of the pipes to be coupled;

each of said coupling segments including:

radially inwardly extending and axially spaced first and second keys, said first keys of the juxtaposed coupling segments being in circumferential alignment, and said second keys of the juxtaposed coupling segments being in circumferential alignment, each of said first and second keys being adapted to cooperatively engage a peripheral groove about the outer circumference of one of the juxtaposed pipe ends, and

bolt receiving pads at the ends of each of said coupling segments for receiving bolts to securably maintain the individual coupling segments of each series about the juxtaposed pipe ends, with the tightening of said bolts bringing the bolt pads together to urge the individual coupling segments radially inward to produce a reduction in the internal circumference of the coupling and cause clamping engagement with the pipe exterior, with said keys being tightly retained within their respective pipe recesses when said bolts are in their fully tightened condition;

each one of said series having a different diameter and intended to couple together two pipes having the same pipe diameter;

each first segmented pipe coupling in a first one of said series having a first diameter and each second segmented pipe coupling in a second one of said series having a second diameter, said second segmented pipe couplings being the next successively sized couplings within said series after said first segmented pipe couplings, with said second diameter being greater than said first diameter,

said first segmented pipe couplings being intended to couple together pipes having respective pipe diameters that are different from the respective pipe diameters of pipes that said second segmented pipe couplings are intended to couple together,

wherein said coupling segments in any one of said series are identical to each other and symmetric such that each bolt pad on any coupling segment in any one of said series is alignable into a fully bolt tightened connection with any bolt pad of any other coupling segment in that one of said series,

the improvement comprising:

anti-mismatch means provided on the individual ones of said coupling segments for preventing the fully bolt tightened connection of a coupling segment of said first one of said series to a coupling segment of said second one of said series, said second diameter being only slightly greater than said first diameter,

wherein each anti-mismatch means provided on the coupling segments of said first one of said series has a first structural symmetry and each anti-mismatch means provided on the coupling segments of said second one of said series has a second structural symmetry different from said first structural symmetry, such that any two of the coupling segments of said first one of said series will nest together with matching symmetries, any

two of the coupling segments of said second one of said series will nest together with matching symmetries, but any coupling segment of said first one of said series is prevented from nesting with any coupling segment of said second one of said series by their different symmetries.

wherein said anti-mismatch means includes a first member on a first of said coupling segments in each of said series, and a second member on a second of said coupling segments of each of said series,

the first and second members of said first one of said series of segmented pipe couplings configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said first diameter,

the first and second members of said second ones of said series of pipe couplings configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said second diameter,

the orientation of said first and second members of said first one of said series of segmented pipe couplings differing from the orientation of said first and second members of said second one of said series such that said first and second members of their respective segmented pipe couplings provide an interference relationship opposing the bolted connection of an arcuate coupling segment of said first one of said series to an arcuate coupling segment of said second one of said series,

wherein said interference relationship provides a separation gap between the bolt pads of juxtaposed coupling segments of said first and second ones of said series, preventing the bringing together of the bolt pads of juxtaposed coupling segments of said first and second series to their fully tightened condition,

wherein each of said series of coupling segments includes two identical substantially semicircular arcuate coupling segments, the first and second members of the coupling segments of said first one of said series being reverse located with respect to the first and second members of said second one of said series, and

wherein said first member being a projection and said second member being a recess configured to receive said projection, the location of said projection and recess in said second one of said series being the reverse of said first one of said series, such that if two coupling segments of the same one of said first or second series are in juxtaposition a projection of each coupling segment will enter a recess of the other coupling segment to permit close engagement therebetween, and if a coupling segment of said first series is in juxtaposition to a coupling segment of said second series their projections will abut to prevent close engagement therebetween.

8. (original) In a series of successively sized segmented pipe coupling segments according to claim 7, wherein said interference relationship provides a separation gap between the bolt pads of juxtaposed coupling segments of said first and second ones of said series, preventing the bringing together of the bolt pads of juxtaposed coupling segments of said first and second series to their fully tightened condition.



9. (cancelled)

10. (cancelled)

11. (cancelled)

12. (cancelled)

13. (cancelled)

14. (cancelled)

15. (cancelled)

16. (cancelled)

17. (cancelled)

18. (currently amended) In a series of successively sized segmented pipe couplings according to claim 17, each coupling adapted to securably connect the similarly configured and sized pipe ends of juxtaposed pipes;

each one of said series of segmented pipe couplings comprising two arcuate segments to be assembled in arcuate end-to-end relationship for encircling the juxtaposed ends of the pipes to be coupled;

each of said coupling segments including:

radially inwardly extending and axially spaced first and second keys, said first keys of the juxtaposed coupling segments being in circumferential alignment, and said second keys of the juxtaposed coupling segments being in circumferential alignment, each of said first and second keys being adapted to cooperatively engage a peripheral groove about the outer circumference of one of the juxtaposed pipe ends, and

bolt receiving pads at the ends of each of said coupling segments for receiving bolts to securably maintain the individual coupling segments of each series about the juxtaposed pipe ends, with the tightening of said bolts bringing the bolt pads together to urge the individual coupling segments radially inward to produce a reduction in the internal circumference of the coupling and cause clamping engagement with the pipe exterior, with said keys being tightly retained within their respective pipe recesses when said bolts are in their fully tightened condition;

each one of said series having a different diameter and intended to couple together two pipes having the same pipe diameter;

each first segmented pipe coupling in a first one of said series having a first diameter and each second segmented pipe coupling in a second one of said series having a second diameter, said second segmented pipe couplings being the next successively sized couplings within said series after said first segmented pipe couplings, with said second diameter being greater than said first diameter,

said first segmented pipe couplings being intended to couple together pipes having respective pipe diameters that are different from the respective pipe diameters of pipes that said second segmented pipe couplings are intended to couple together,

wherein said coupling segments in any one of said series are identical to each other and symmetric such that each bolt pad on any coupling segment in any one of said series is alignable into a fully bolt tightened connection with any bolt pad of any other coupling segment in that one of said series,

the improvement comprising:

anti-mismatch means provided on the individual ones of said coupling segments for preventing the fully bolt tightened connection of a coupling segment of said first one of said series to a coupling segment of said second one of said series, said second diameter being only slightly greater than said first diameter,

said anti-mismatch means being a projection on a first of said coupling segments in each of said series, and a recess on a second of said coupling segments of each of said series;

the projection and recess of said first one of said series configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said first diameter;

the projection and recess of said second one of said series configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said second diameter;

the orientation of said projection and recess of said first one of said series differing from the orientation of said projection and recess of said second one of said series such that said projections of their respective segmented pipe couplings abut and provide an interference relationship opposing the bolted connection of an arcuate coupling segment of said first one of said series to an arcuate coupling segment of said second one of said series,

wherein each anti-mismatch means provided on the coupling segments of said first one of said series has a first structural symmetry and each anti-mismatch means

provided on the coupling segments of said second one of said series has a second structural symmetry different from said first structural symmetry, such that any two of the coupling segments of said first one of said series will nest together with matching symmetries, any two of the coupling segments of said second one of said series will nest together with matching symmetries, but any coupling segment of said first one of said series is prevented from nesting with any coupling segment of said second one of said series by their different symmetries,

wherein said interference relationship provides a separation gap between the bolt pads of juxtaposed coupling segments of said first and second ones of said series, preventing the bringing together of the bolt pads of juxtaposed coupling segments of said first and second series to their fully tightened condition.

19. (currently amended) In a series of successively sized segmented pipe couplings ~~according to claim 17,~~ each coupling adapted to securably connect the similarly configured and sized pipe ends of juxtaposed pipes;

each one of said series of segmented pipe couplings comprising two arcuate segments to be assembled in arcuate end-to-end relationship for encircling the juxtaposed ends of the pipes to be coupled;

each of said coupling segments including:

radially inwardly extending and axially spaced first and second keys, said first keys of the juxtaposed coupling segments being in circumferential alignment, and said second keys of the juxtaposed coupling segments being in circumferential alignment, each of said

first and second keys being adapted to cooperatively engage a peripheral groove about the outer circumference of one of the juxtaposed pipe ends, and

bolt receiving pads at the ends of each of said coupling segments for receiving bolts to securably maintain the individual coupling segments of each series about the juxtaposed pipe ends, with the tightening of said bolts bringing the bolt pads together to urge the individual coupling segments radially inward to produce a reduction in the internal circumference of the coupling and cause clamping engagement with the pipe exterior, with said keys being tightly retained within their respective pipe recesses when said bolts are in their fully tightened condition;

each one of said series having a different diameter and intended to couple together two pipes having the same pipe diameter;

each first segmented pipe coupling in a first one of said series having a first diameter and each second segmented pipe coupling in a second one of said series having a second diameter, said second segmented pipe couplings being the next successively sized couplings within said series after said first segmented pipe couplings, with said second diameter being greater than said first diameter,

said first segmented pipe couplings being intended to couple together pipes having respective pipe diameters that are different from the respective pipe diameters of pipes that said second segmented pipe couplings are intended to couple together,

wherein said coupling segments in any one of said series are identical to each other and symmetric such that each bolt pad on any coupling segment in any one of said series is

alignable into a fully bolt tightened connection with any bolt pad of any other coupling segment in that one of said series,

the improvement comprising:

anti-mismatch means provided on the individual ones of said coupling segments for preventing the fully bolt tightened connection of a coupling segment of said first one of said series to a coupling segment of said second one of said series, said second diameter being only slightly greater than said first diameter,

said anti-mismatch means being a projection on a first of said coupling segments in each of said series, and a recess on a second of said coupling segments of each of said series;

the projection and recess of said first one of said series configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said first diameter;

the projection and recess of said second one of said series configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said second diameter;

the orientation of said projection and recess of said first one of said series differing from the orientation of said projection and recess of said second one of said series such that said projections of their respective segmented pipe couplings abut and provide an

interference relationship opposing the bolted connection of an arcuate coupling segment of said first one of said series to an arcuate coupling segment of said second one of said series,

wherein each anti-mismatch means provided on the coupling segments of said first one of said series has a first structural symmetry and each anti-mismatch means provided on the coupling segments of said second one of said series has a second structural symmetry different from said first structural symmetry, such that any two of the coupling segments of said first one of said series will nest together with matching symmetries, any two of the coupling segments of said second one of said series will nest together with matching symmetries, but any coupling segment of said first one of said series is prevented from nesting with any coupling segment of said second one of said series by their different symmetries,

wherein the location of said projection and recess in said second one of said series being the reverse of said first one of said series, such that if two coupling segments of the same one of said first or second series are in juxtaposition a projection of each coupling segment will enter a recess of the other coupling segment to permit close engagement therebetween, and if a coupling segment of said first series is in juxtaposition to a coupling segment of said second series their projections will abut to prevent close engagement therebetween.

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

25. (cancelled)

26. (currently amended) In a series of successively sized segmented pipe couplings ~~according to claim 25~~, each coupling adapted to securably connect similarly configured and sized pipes;

each one of said series of segmented pipe couplings comprising at least two arcuate segments to be assembled in arcuate end-to-end relationship for encircling the portions of the pipes to be coupled;

each of said coupling segments including:

a radially inwardly extending portion adapted to engage the outer circumference of one of the pipes being connected, and

bolt receiving pads at the ends of each of said coupling segments for receiving bolts to securably maintain the individual coupling segments of each series about the pipes being connected, with the tightening of said bolts bringing the bolt pads together to urge the individual coupling segments radially inward to produce a reduction in the internal circumference of the coupling and cause clamping engagement with the pipe exterior;

each one of said series having a different diameter and intended to couple together two pipes having the same pipe diameter;

each first segmented pipe coupling in a first one of said series having a first diameter and each second segmented pipe coupling in a second one of said series having a second



diameter, said second segmented pipe couplings being the next successively sized couplings within said series after said first segmented pipe couplings, with said second diameter being greater than said first diameter,

said first segmented pipe couplings being intended to couple together pipes having respective pipe diameters that are different from the respective pipe diameters of pipes that said second segmented pipe couplings are intended to couple together,

wherein said coupling segments in any one of said series are identical to each other and symmetric such that each bolt pad on any coupling segment in any one of said series is alignable into a fully bolt tightened connection with any bolt pad of any other coupling segment in that one of said series,

the improvement comprising:

anti-mismatch means provided on the individual ones of said coupling segments for preventing the fully bolt tightened connection of a coupling segment of said first one of said series to a coupling segment of said second one of said series, said second diameter being only slightly greater than said first diameter,

wherein each anti-mismatch means provided on the coupling segments of said first one of said series has a first structural symmetry and each anti-mismatch means provided on the coupling segments of said second one of said series has a second structural symmetry different from said first structural symmetry, such that any two of the coupling segments of said first one of said series will nest together with matching symmetries, any two of the coupling segments of said second one of said series will nest together with matching symmetries, but any coupling segment of said first one of said series is prevented

from nesting with any coupling segment of said second one of said series by their different symmetries,

wherein said anti-mismatch means includes a first member on a first of said coupling segments in each of said series, and a second member on a second of said coupling segments of each of said series;

the first and second members of said first one of said series of segmented pipe couplings configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said first diameter;

the first and second members of said second ones of said series of pipe couplings configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said second diameter;

the orientation of said first and second members of said first one of said series of segmented pipe couplings differing from the orientation of said first and second members of said second one of said series such that said first and second members of their respective segmented pipe couplings provide an interference relationship opposing the bolted connection of an arcuate coupling segment of said first one of said series to an arcuate coupling segment of said second one of said series,

wherein said interference relationship provides a separation gap between the bolt pads of juxtaposed coupling segments of said first and second ones of said series, preventing the

bringing together of the bolt pads of juxtaposed coupling segments of said first and second series to their fully tightened condition,

wherein each of said series of coupling segments includes two identical substantially semicircular arcuate coupling segments, the first and second members of the coupling segments of said first one of said series being reverse located with respect to the first and second members of said second one of said series.

27. (currently amended) In a series of successively sized segmented pipe couplings ~~according to claim 24,~~ each coupling adapted to securably connect similarly configured and sized pipes;

each one of said series of segmented pipe couplings comprising at least two arcuate segments to be assembled in arcuate end-to-end relationship for encircling the portions of the pipes to be coupled;

each of said coupling segments including:

a radially inwardly extending portion adapted to engage the outer circumference of one of the pipes being connected, and

bolt receiving pads at the ends of each of said coupling segments for receiving bolts to securably maintain the individual coupling segments of each series about the pipes being connected, with the tightening of said bolts bringing the bolt pads together to urge the individual coupling segments radially inward to produce a reduction in the internal circumference of the coupling and cause clamping engagement with the pipe exterior;

each one of said series having a different diameter and intended to couple together two pipes having the same pipe diameter;

each first segmented pipe coupling in a first one of said series having a first diameter and each second segmented pipe coupling in a second one of said series having a second diameter, said second segmented pipe couplings being the next successively sized couplings within said series after said first segmented pipe couplings, with said second diameter being greater than said first diameter,

said first segmented pipe couplings being intended to couple together pipes having respective pipe diameters that are different from the respective pipe diameters of pipes that said second segmented pipe couplings are intended to couple together,

wherein said coupling segments in any one of said series are identical to each other and symmetric such that each bolt pad on any coupling segment in any one of said series is alignable into a fully bolt tightened connection with any bolt pad of any other coupling segment in that one of said series,

the improvement comprising:

anti-mismatch means provided on the individual ones of said coupling segments for preventing the fully bolt tightened connection of a coupling segment of said first one of said series to a coupling segment of said second one of said series, said second diameter being only slightly greater than said first diameter,

wherein each anti-mismatch means provided on the coupling segments of said first one of said series has a first structural symmetry and each anti-mismatch means provided on the coupling segments of said second one of said series has a second structural

symmetry different from said first structural symmetry, such that any two of the coupling segments of said first one of said series will nest together with matching symmetries, any two of the coupling segments of said second one of said series will nest together with matching symmetries, but any coupling segment of said first one of said series is prevented from nesting with any coupling segment of said second one of said series by their different symmetries,

wherein said anti-mismatch means includes a first member on a first of said coupling segments in each of said series, and a second member on a second of said coupling segments of each of said series;

the first and second members of said first one of said series of segmented pipe couplings configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said first diameter;

the first and second members of said second ones of said series of pipe couplings configured and located to nest as their coupling segments are bolt tightened, such that the ends of said coupling segments are brought together in close proximity to encircle a pipe of a diameter corresponding to said second diameter;

the orientation of said first and second members of said first one of said series of segmented pipe couplings differing from the orientation of said first and second members of said second one of said series such that said first and second members of their respective segmented pipe couplings provide an interference relationship opposing the bolted connection

of an arcuate coupling segment of said first one of said series to an arcuate coupling segment of said second one of said series,

wherein said first member being a projection and said second member being a recess configured to receive said projection, the location of said projection and recess in said second one of said series being the reverse of said first one of said series, such that if two coupling segments of the same one of said first or second series are in juxtaposition a projection of each coupling segment will enter a recess of the other coupling segment to permit close engagement therebetween, and if a coupling segment of said first series is in juxtaposition to a coupling segment of said second series their projections will abut to prevent close engagement therebetween.

28. (original) In a series of successively sized segmented pipe coupling segments according to claim 27, wherein said interference relationship provides a separation gap between the bolt pads of juxtaposed coupling segments of said first and second ones of said series, preventing the bringing together of the bolt pads of juxtaposed coupling segments of said first and second series to their fully tightened condition.

29. (original) In a series of successively sized segmented pipe coupling segments according to claim 26, wherein said first member being a projection and said second member being a recess configured to receive said projection, the location of said projection and recess in said second one of said series being the reverse of said first one of said series, such that if two coupling segments of the same one of said first or second series are in juxtaposition a

projection of each coupling segment will enter a recess of the other coupling segment to permit close engagement therebetween, and if a coupling segment of said first series is in juxtaposition to a coupling segment of said second series their projections will abut to prevent close engagement therebetween.

30. (original) In a series of successively sized segmented pipe coupling segments according to claim 29, wherein said interference relationship provides a separation gap between the bolt pads of juxtaposed coupling segments of said first and second ones of said series, preventing the bringing together of the bolt pads of juxtaposed coupling segments of said first and second series to their fully tightened condition.

31. (cancelled)

32. (cancelled)

33. (cancelled)

34. (cancelled)

35. (cancelled)